

Notes from the 5/03/05 MI BPM Requirements Meeting

Stephen Wolbers

These notes can be found in Beams docDB #1526.

Bob Webber: Wide Aperture BPM response

- Bob showed two plots of a wide aperture BPM, one with electrodes at 45 degrees and the other with the electrodes at 0/90 degrees (see figures). The plots show the response of the BPMs with a wire scan and computes the position of each wire based on the measured response.

- The two plots will be loaded into docDB #1526. Bob's text for each is:

- 1) Recent measurements of existing MI Wide Aperture BPM scanning in the plane of the electrodes. Plot shows reconstructed positions from electrode signals using constant db/mm formulation.

- 2) Original measurements of MI Wide Aperture BPM scanning in the plane at 45 degrees to the electrodes. This is the present "normal" installation orientation of these BPMs. Plot shows reconstructed positions from suitably combined electrode signals using constant db/mm formulation.

- It looks as if electrodes at 0/90 degrees are preferred for the 7 new magnets that are being built. There is some question about whether these magnets are physically capable of having electrodes at the 0/90 orientation. Further investigations will be made.

Bob Webber: Echotek investigations

- Peter and Charlie have been able to use all 4 Echotek Graychip channels simultaneously, with two channels used for 2.5 MHz (wide and narrow band) and two channels at 53 MHz (wide and narrowband).

- The near-term plan is to use a modified Recycler software/frontend system to continue the studies but it would be good to get these investigations and the MI F.E. software effort more tightly connected.

Bill Haynes: TeV BPM Timing Card

- Bill gave a nice summary of the Tevatron BPM Timing card. His slides can be found in Beams docDB #1810.

- Bill's talk covered the design of the board, how it is used in the TeV BPM system, what capabilities it has beyond that, how it can be

modified to work in different ways. There were long discussions about how the board could be modified (mostly in firmware) to handle the different frequency of the MI and the large variety of cycles.

- The tentative conclusion is that the board could be used for the MI BPM given some of the thinking about how to make measurements during a given cycle (e.g. injection first turn (TBT and CO), CO, TBT, extraction TBT). The card seems sufficiently flexible and has enough unused space on the FPGA to allow this.

- Two cards could probably be used in one crate if that turns out to be necessary.

- Further discussions include TCLK, MDAT and states, Booster->MI clock and beam synchronization, 53MHz clock and Beam SYNC continuity between cycles.

AOB:

- Next week we should be hearing about the service buildings from Marv Olson.

- We may also get an explanation of the RF and other clock signals during cycles in the MI.